85. (Amended) A liquid crystal material for an electro-optical glazing structure comprising a chiral liquid crystal and a monomer selected from the group consisting of ethylene Glycol glycol Dimethacrylate dimethacrylate(EGD), urethane acrylates having a viscosity of about 300 to about 400 centipoise, and epoxies having a viscosity of about 1400 to about 1800 centipoise, ~~Ethylene Glycol Dimethacrylate (EGD), UV10, UV15-7~~ and combinations comprising at least one of the foregoing monomers ~~commercially available from Aldrich and Master Bond~~.

87. (Amended) The liquid crystal material of claim 86, wherein said dichroic dye is an anthraquinone dye~~selected from the group consisting of D5, D35, D52 and combinations comprising at least one of the foregoing dyes commercially available from EMI~~.

88. (Amended) A liquid crystal material for an electro-optical glazing structure comprising a chiral liquid crystal, a monomer, and a surfactant.

REMARKS

Applicants thank the Examiner for the careful attention accorded this Application and respectfully requests reconsideration in view of the Amendments set forth above and the remarks below.

Claims 41, 46, 51, 56, 62, 83-85 and 88 have all been amended to more clearly define the liquid crystal material, such that the liquid crystal material generally includes a chiral liquid crystal material and a monomer (which is further limited in claims 41, 46, 51 and 83-85 as they stood prior to the amendment).

Claims 46 and 84 have also been amended to remove reference to the source of material. Claims 51 and 85 have been amended to replace the trade names of the monomers with readily known property parameters of the previously identified materials. Corresponding amendment to the specification has also been presented, and an attachment from Master Bond (www.masterbond.com/sg/uvsg.html) is included. Claims 61 and 87 have been amended to replace the trade names of the dichroic dyes with known structural characteristics of the

previously identified materials. Corresponding amendment to the specification has also been presented, and an attachment from Bahadur, Liquid Crystals, Applications and Uses, Vol. 3, p. 73 © 1992 World Scientific.

Applicants have cancelled claims 68-82, and 90-92 without prejudice or disclaimer. Applicants reserve the right to file one or more continuation applicants herefrom in order to continue prosecution of the inventive subject matter of the cancelled claims.

The examiner has variously rejected all of the pending claims under 35 USC § 103(a). To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicants' disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Claims 41 and 83 have been rejected under 35 USC § 103(a) over McLaughlin et al. U.S. Patent No. 4,749,261 and Khan et al. U.S. Patent No. 6,172,720.

First, Applicants respectfully submit that there is no suggestion or motivation to combine the teachings of McLaughlin, which discloses privacy or solar control panels, with Khan, which discloses materials for liquid crystal displays, other than in Applicant's disclosure.

Second, even if the references were properly combinable, Applicants respectfully submit that all of the limitations of claims 41 and 83 are not taught or suggested in the references. Particularly, claims 41 and 83 are directed, in part, to:

"...monomer lacking the mesogenic group of the general formula:

$[Si(CH_3)O]_n$."

While the Examiner notes that Khan discloses a material having no liquid crystalline phase for the purpose of lowering viscosity of the material, the general formula $[Si(CH_3)O]_n$ is not taught or suggested. Therefore, it is respectfully submitted that claims 41 (and 42-45 which depend from claim 41) and claim 83 are patentable over the cited art.

Claims 46, 51, 84 and 85 stand rejected under 35 USC § 103(a) over McLaughlin et al. U.S. Patent No. 4,749,261 in view of Tangney U.S. Patent No. 4,961,532. It is respectfully submitted that there is no suggestion or motivation to combine the teachings of McLaughlin, which discloses privacy or solar control panels, with Tangney, which discloses materials for polymeric cosmetic carrier beads, and does not relate to or disclose use of the claimed materials including the monomers as liquid crystal materials for glazing structures.

Claims 56, 61, 86 and 87 stand rejected under 35 USC § 103(a) over McLaughlin et al. U.S. Patent No. 4,749,261 in view of Hakemi et al. U.S. Patent No. 6,049,366 and Cole Jr. U.S. Patent No. 4,097,130. It is respectfully submitted that there is no suggestion or motivation to combine the teachings of McLaughlin, which discloses privacy or solar control panels, and Hakemi, which discloses flexible polymer stabilized liquid crystal devices with Cole Jr., which discloses an actuatable multi-colored display using liquid crystal material including dichroic dye. In contrast, the dichroic dye is used in the present invention to impart to the electro-optical glazing structure a colored non-transparent state, and a tinted transparent state.

Claims 62 and 88 stand rejected under 35 USC § 103(a) over McLaughlin et al. U.S. Patent No. 4,749,261 in view of Simoni et al. U.S. Patent No. 4,579,422. It is respectfully submitted that the combination of the referenced does not disclose the features of the rejected claims. The use of a surfactant in Simoni is for the purpose of facilitating the mechanical rubbing step. In contrast, a surfactant is used in the invention of claims 62, 88 and claims depending therefrom for enhancing panel uniformity and decreasing flow streaks (specification, page 24, 4th paragraph).

Claims 67 and 89 stand rejected under 35 USC § 103(a) over McLaughlin et al. U.S. Patent No. 4,749,261 in view of Simoni et al. U.S. Patent No. 4,579,422 and Herb et al. U.S. Patent No. 6,022,547. First, the differences pointed out above with regard to Simoni obviate this rejection. Further, it is respectfully submitted that there is no suggestion or motivation to combine the teachings of McLaughlin, which discloses privacy or solar control panels, Simoni, which discloses continuously rotatable polarizing devices, and Herb, which discloses water-in-oil emulsions.

Claims 45, 50, 55 and 66, stand rejected under 35 USC § 103(a) over McLaughlin et al. U.S. Patent No. 4,749,261 in view of Hakemi et al. U.S. Patent No. 6,049,366. However, each of these claims are dependent claims, the parent claims of which have been addressed above. Further, the Examiner did not discuss the added features of claims 45, 50, 55 and 66 – using a float glass substrate. Hakemi discloses flexible substrates, thus the combination does not render the claimed inventions.

Claims 42-44, 47-89, 52-54, 57-59 and 63-65 stand rejected under 35 USC § 103(a) over McLaughlin and Khan, Tangney, Hakemi, Cole Jr. and Simoni as applied to claims 41, 46, 51, 56 and 62 further in view of Doane et al. U.S. Patent No. 5,691,785. However, each of these claims are dependent claims, the parent claims of which have been addressed above.

The amendments herein do not introduce any new matter. It is believed that the claims herein should be allowable to Applicants. Accordingly, allowance is respectfully requested.

Respectfully submitted,

By: Ralph J. Crispino
Ralph J. Crispino
Registration No. 46,144

Date: September 9, 2002
REVEO, INC.
85 Executive Boulevard
Elmsford, New York 10523
Telephone (914) 798-7270
Facsimile: (914) 345-9558

MASTER BOND UV CURABLE PRODUCT SELECTOR GUIDE

Selected Master Bond UV Curable Adhesives, Sealants, Coatings & Encapsulants
Partial Listing Only — Other Grades Available

Master Bond Grade	Viscosity RT, cps	Color Code	Hardness Shore D	Service Temp Range, °F	Applications
UV10	300-400	light amber clear	80-85	-60 to 250°F	Low viscosity general purpose type adhesive, sealant, coating and encapsulant. Will cure light and up to 1/8" deep. Excellent resistance to water and other chemicals.
UV10FL	600-700	light amber clear	45-50	-60 to 250°F	Flexibilized version of UV10. Excellent resistance to mechanical shock and vibration. Superior thermal cycling properties. Well suited for bonding dissimilar substrates.
UV10LV	200	light amber clear	75	-60 to 250°F	Ultra-low viscosity adhesive, sealant, coating and encapsulant. Wickable. Outstanding electrical properties. Ideal for specialized conformal coatings.
UV10MED	1,200-1,800	light amber clear	80-85	-60 to 250°F	Medical grade version of UV10. USP Class VI approved. Good physical strength properties and superior chemical resistance profile. Also serviceable as an encapsulant for medical electronics.
UV10PSA	16,000 & 65,000	transparent	N/A*	-60 to 250°F	High strength, fast tacking, pressure sensitive adhesive. Available in two different viscosities allowing for versatile application methods.
UV10TK	30,000-40,000	light amber clear	70-75	-60 to 300°F	Higher viscosity version of UV10. Enhanced temperature & chemical resistance. Good dimensional stability. Low shrinkage upon cure. Bonds well to most plastics, metals and glass.
UV11-3	60	transparent	N/A*	-60 to 250°F	Ultra-low viscosity, spin coatable, scratch resistant coating. Used with glass, acrylics, polycarbonates and other plastics.
UV14-3	25,000-30,000	transparent	20	-60 to 250°F	Flexible adhesive, sealant and encapsulant. Bonds well to a wide variety of substrates. Easily removable by conventional solvents. Possesses a very low index of refraction (1.45).
UV14X-2TK	thixotropic	transparent	60	-60 to 250°F	Semi-flexible adhesive, sealant and encapsulant. Exceptional durability. Superior electrical properties. Low shrinkage. Used in medical applications. Resists most chemical sterilants.
UV15	120-150	slight amber clear	N/A*	-60 to 350°F	Very low viscosity adhesive, sealant & coating. Features high temperature stability, superior chemical resistance as well as low shrinkage. Post curing by heat enhances properties.
UV15-42C	paste	translucent	60-70	-60 to 250°F	Ultra-fast curing, easy to handle adhesive/sealant. Superior dimensional stability. Low shrinkage. Widely used in opto-electronics. Convenient non-drip application feature.
UV15-7	1,400-1,800	transparent	65	-60 to 300°F	Excellent adhesive, sealant, coating and encapsulant. Cures over 1/8" deep. Superb non-yellowing properties. Unsurpassed electrical properties. Widely used in optical and electronic applications.
UV15-7DC	2,500-5,000	transparent	65-70	-60 to 300°F	Dual cure version of UV15-7. Will cure in shadowed cut areas by adding heat (250°F). Excellent physical and electrical properties. Bonds well to glass, metals and most plastics.

Master Bond Grade	Viscosity RT, cps	Color Code	Hardness Shore D	Service Temp Range, °F	Applications
UV15-7(LR)	6,000-10,000	transparent	50	-60 to 250°F	Special low index of refraction (1.47). Used as an adhesive, sealant and coating. Good mechanical properties. Primarily for optical and electro-optical applications. Superior thermal cycling properties.
UV15-7SPd	800-1,500	transparent	35	-60 to 250°F	Highly flexibilized version of UV15-7. Outstanding thermal and mechanical shock resistance. Excellent thermal cycling capabilities. Unsurpassed non-yellowing properties.
UV15-7TKtA	paste	translucent	65	-60 to 300°F	Paste version of UV15-7. Good dimensional stability. Low shrinkage. Ideal for intricate sealing & bonding applications. Also used as an encapsulant & glob top in electronic & opto-electronics.
UV15FL	200-300	light amber clear	N/A*	-60 to 250°F	Flexible version of UV15. Enhanced peel strength. Bonds well to most metals, plastics & glass. Post curing by heat improves temperature and chemical resistance properties.
UV15FK	8,000-10,000	slight amber clear	N/A*	-60 to 350°F	High viscosity version of UV15. Enhanced temperature resistance. Superior chemical resistance to acids, fuels and most solvents. Post curing with heat augments properties.
UV15X-2	6,000-8,000	transparent	65	-80 to 250°F	Semi-flexible adhesive, sealant & encapsulant. Cures over 1/4" deep. Bonds very well to metals, most plastics & glass. Good electrical & non-yellowing properties. Ideal for bonding dissimilar substrates.
UV15X-2GT	paste	translucent	65	-80 to 250°F	Easily processable glob top. Excellent moisture resistance. Combines superior durability, temperature resistance along with superb thermal cycling and shock resistance properties.
UV15X-5	120,000	transparent	30	-80 to 250°F	Highly flexible adhesive, sealant & coating. Superb peel strength & abrasion resistance. Excels in withstanding shock, vibration & thermal cycling. Good electrical properties. Ideal for potting & encapsulation.
UV15X-6	24,000	transparent	35	-80 to 250°F	Medical grade version of UV15X-5. USP Class VI approved. Excellent adhesion to metals, plastics, glass and rubber. Good resistance to chemical sterilants.

*Shore D hardness can not be measured for this system

The cure speed of UV systems depends on depth of cure, the intensity of UV light source and the distance of the UV light source from the material being cured.

Master Bond UV products are specially packaged to protect them from UV light exposure. Store the product in its original container. Keep closed when not in use. Shelf life for most systems in original, unopened containers is 6 months in bottles or cans and 3 to 6 months in syringes depending on the product.

Master Bond Inc.

Adhesives, Sealants & Coatings • 154 Hobart Street • Hackensack, N.J. 07601 • Tel: 201-343-8983 • Fax: 201-343-2132

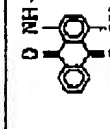
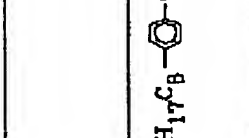
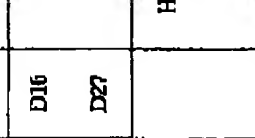
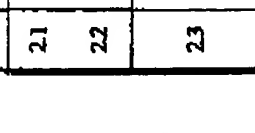
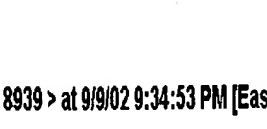
LIQUID CRYSTALS
Applications and Uses

Vol. 3

Edited by
Birendra Bahadur
Display Systems Engineering
Litton Systems Canada Ltd.
Etobicoke, Ontario M9W 5A7
Canada

World Scientific
Singapore • New Jersey • London • Hong Kong

TABLE 2A: Examples of Various Types of Dichroic Dyes and Their Physical Parameters
ANTHRAQUINONE DYES (2.1 - 2.26), AZO DYES (2.27 - 2.31), OTHER TYPES (2.32 - 2.50)

Dye No.	Comm. Code	Structure / Name	λ_{max}	Order Parameter	Host (Solubility)
2.1	D16	 D16 R=OC_4H_9	596	0.65	E 7
2.2	D27	D27 R=$N(CH_3)_2$	612	0.63	E 7
2.3				0.91	
2.4	D35	D35 R=C_4H_9	554	0.67	E 7
2.5	D43	D43 R=OC_5H_{11}	557	0.68	E 7
2.6	D46	D46 R=OC_6H_{13}	556	0.69	E 7
2.7	D52	D52 R=$N(CH_3)_2$	546	0.65	E 7
2.8	D54	D54 R=$-N=N-C_6H_5$	524	0.71	E 7
2.9	D77	D77 R=$CH(CH_3)_2$	558	0.68	E 7
2.10		2.10 R=C_6H_5		0.80	ZLI 1132
2.11		2.11 R=$C_6H_4C_6H_5$		0.90	ZLI 1132
2.12				0.85	ZLI 1132
2.13				0.71 0.76 0.78 0.31 0.52 0.56	E 7 E 43 ZLI 1691 MBBA EN 24 ROTN 101
2.14				0.66 0.68 0.65	E 7 E 43 EN 24